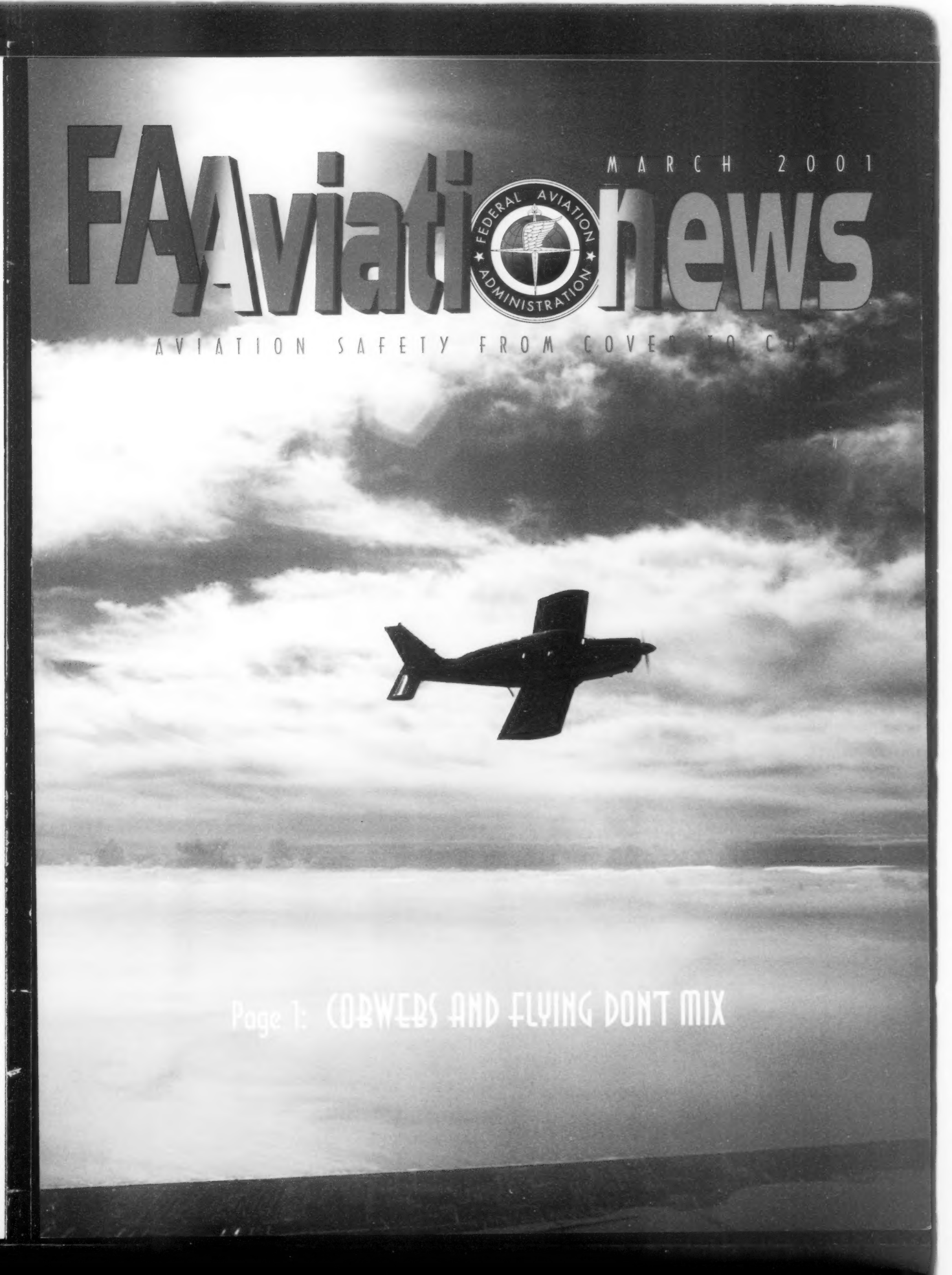
FAA Aviation news
MARCH 2001
FEDERAL AVIATION ADMINISTRATION
AVIATION SAFETY FROM COVER TO COVER
Page 1: COBWEBS AND FLYING DON'T MIX

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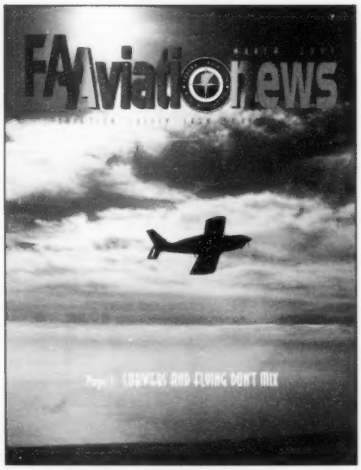


FRONT COVER: Are you ready for the flying season?

BACK COVER: Mooney Eagle (courtesy of Mooney Aircraft)

Cobwebs and Flying Don't Mix

by Ellen Paneok

Pilots, it's coming up on springtime and the season to fly is upon us. We shake ourselves from our winter sleep, ready to take on the warmer skies. That means preparing our airplanes and ourselves by getting the cobwebs out, so to speak.

Remember that if your aircraft has been sitting all winter, it needs to be thoroughly checked over before you take it out for your first springtime flight. I know that Alaska's long winters provide snow and sometimes windstorms that can play havoc with your plane. Snow can lodge in the elevator hinges and the air inlet of the cowling. Foreign matter can be blown into the pitot tube and radio vents or they could be plugged with ice and/or snow.

The first preflight should be a very thorough one. Check the elevator and rudder for full play, windstorm damage or lodged ice can limit full movement and create a potential hazard. Check the stabilizer hinge points for lodged ice. Also check for distortion or cracks on all surfaces. Make sure the control cables are properly attached and not frayed or loose. In a fabric aircraft, check for wrinkled surfaces from possible windstorm or heavy snow damage. On the wings, check the wing attach points, flaps, and aileron hinges for cracks. Again, check for full travel of the controls. Check the tires for weather checking. Check the fuel vents to make sure they are not clogged with foreign matter. Don't be shy about draining at least a pint of fuel from all fuel drains and the lowest point in your fuel system to check for water and impurities that may have accumulated throughout the winter months. On the cowling, check for windblown foreign objects in the air intakes and the prop spinner. Check the air filter to make sure that it is not clogged.

Preflight yourself as well your aircraft. Remember that you might have some cobwebs of your own to work out before starting your flying season. Pilots should perform a preflight on themselves after a season of not flying. A flight review may be in order. Or you might spend some time with an instructor to shore up your proficiency before going out and stretching your "wings" for the first time of the season. You may want to refresh yourself with the Federal Aviation Regulations and any changes that may have been made. You also should check current NOTAMS, sectional charts, and Airport Facility Directories for any changes that may have occurred at the destination airports. In fact, a call to not only your destination airport, but also your home airport, might not be a bad idea either to see if anything new has happened since you were last there.

Remember not to allow the mind set that flying is like riding a bicycle—once you jump in the saddle everything will automatically come to you. It takes practice to get yourself back up to your original proficiency level.

In closing, remember those cobwebs. Remember to do a complete and thorough preflight of your airplane if you haven't flown it all winter. Be sure to remember to preflight yourself as well and have a good and safe season of flying.

Ellen Paneok is an Operations Inspector at the Anchorage Flight Standards District Office. Her article originally appeared in the FAA Alaskan Flyer.

Sun 'n Fun 2001

by H. Dean Chamberlain

The FAA's Special Air Traffic Management Program (SATMP) for this year's week-long Sun 'n Fun EAA Fly-In in Lakeland, Florida is available for those planning to attend the fly-in. The SATMP Notice to Airmen (NOTAM) establishes special operating procedures for Lakeland's Linder Regional Airport, nearby airspace, and procedures for some nearby airports during the effective period of the NOTAM.

The SATMP NOTAM is available in print and on the Internet. Readers with computer access to the Internet can find the Sun 'n Fun SATMP NOTAM on the FAA's website <www.faa.gov>. The Sun 'n Fun's website listed below is also suppose to have a copy of the NOTAM. The SATMP NOTAM has also been printed as a separate NOTAM, and it has been included as part of the FAA's regularly published NOTAMS.

The 2001 Special Air Traffic Management Program will be in effect from April 6 through April 14. Note the special procedures start two days before Sun 'n Fun's opening day on April 8. The dates for the 27th annual Sun 'n Fun Fly-In this year are April 8 through 14. Please note: Some of the operating changes at Lakeland for Sun 'n Fun start on April 5 through 17 as noted in the NOTAM.

For those going to Sun 'n Fun for the first time, you need to review the NOTAM in detail. As we have been saying for years, finding yourself number 10 in trail in the special Lake Parker Arrival Procedure to enter the traffic pattern is not the time to wonder what is going to happen next. As noted in the NOTAM, pilots are reminded to always fly in trail. Side-by-side separation is not permitted. In paraphrasing one report on Sun 'n Fun's website, pilots need to be ready to fly closer to more aircraft in flight than they ever thought possible.

Although the SATMP arrival and departure procedures are not complicated, they do need to be understood very well. The procedures are designed to move hundreds of aircraft safely, quickly, and predictably in and out of Lakeland by having both pilots and controllers follow the same published procedures. Knowing and following the published procedures are especially important in the case of an emergency at Lakeland or one of the outlying airports.

Pilots need to remember that special, reduced arrival and departure separation standards are in effect during this period. An FAA waiver has been issued reducing the standards for category 1 and 2 aircraft which are primarily single engine and light twin engine aircraft.

RUNWAY AND INSTRUMENT APPROACH CHANGES

Following the standard VFR Sun n' Fun Lake Parker Arrival Procedure to get you to the airport, small general aviation VFR traffic can expect to land on what is normally a taxiway at Lakeland Linder Regional Airport. As noted in the NOTAM, three aircraft at a time may be landing on that taxiway redesignated as Runway 9L and 27R during this period. The width of this temporary runway is 75 feet.

As shown in the NOTAM, Runways 9L, 9R, and 27R have displaced thresholds. Temporary Runway 9L will also have two designated touchdown points marked by signs in addition to its strobe-marked displaced threshold area. Aircraft landing on Runway 9L will be told to land either at the threshold, or one of the two designated touchdown points: spot 1 or spot 2. This is how three aircraft may be land-

ing on Runway 9L at the same time, so it is important that all three aircraft know and follow the correct landing procedure.

Aircraft are not to land on the main, wide runway 9R and 27L unless specifically instructed to do so by the control tower.

Runway 5-23 is closed from April 5 through 17 as noted in the NOTAM. In addition, the ILS and NDB/GPS approaches to Runway 5 will be shut down from April 5 through 17.

The VOR Runway 9 Approach will also not be available from April 5 through 17.

All landing pilots are advised to watch for possible wave-offs signals by radio, RED smoke, or by hand signals from the red-shirted air traffic controllers located near the approach end of the runway in use.

Once an aircraft has landed, pilots are expected to clear the runway as soon as possible onto a hard surface area.

The NOTAM contains detailed instructions on landing and taxiing procedures for all types of aircraft including the rather unique request for special cockpit displayed parking signs to be shown by the pilots to the appropriate ground handlers once the aircraft has exited the runway.

RADIO PROCEDURES

Another important operational procedure is the limited use of radio communications to control aircraft landing or departing Lakeland. The NOTAM outlines when pilots should communicate and when they should just monitor their radios. Strict compliance with the published communication procedures will avoid any unnecessary frequency congestion while speeding up the landing or departure process.

Pilots just have to remember their aircraft type and color. While monitoring the appropriate frequency, you might hear something like this, "Red and White *Sky Cadet*, rock your wings for identification. Now, follow the aircraft in front of you to the airport." The fact you may be number 2,000 in trail should not intimidate you. You just need to be prepared to fly in an organized gaggle of aircraft to the airport where two or three aircraft may be landing on the same runway at the same time. All of this may be done without the pilots talking to air traffic control (ATC) unless absolutely necessary.

AFTER LANDING

Because of the number of landing aircraft, landing pilots need to clear the runway as soon as possible onto a hard surface. The need to expedite

traffic is why everyone needs to review the operating procedures outlined in the NOTAM. It is important that aircraft remain on a hard surface unless specifically directed by the tower or flagman to do otherwise. No one needs an aircraft stuck in the grass holding up the parade of landing and departing aircraft.

Aircraft landing on Runway 9L are to turn off to the left. Aircraft landing on Runway 27R are to turn off to the right.

EAA ground personnel on the south side of Runway 9R/27L will direct aircraft to parking. Flashing arrows are also used to indicate the taxi route.

Pilots should review the NOTAM section about making cockpit parking area signs to help the EAA parking crews expedite your route to parking. The requirement is for light colored signs with LARGE dark lettering that can be read from 50 feet away. A list of recommended parking area abbreviations is shown in the NOTAM for the various types of parking areas. The sign is to be displayed in the left side of your windshield after landing and clearing the runway.

When south of Runway 9R or 27L, pilots may contact Sun 'n Fun EAA ground advisory on 126.4 for more parking information.

Because of the number of aircraft, vehicles, and personnel throughout the area, runway incursions are a possibility. Pilots taxiing are asked to use extreme care to avoid an incident or accident.

RADIOS AND LACK THEREOF

Pilots are asked to comply with the radio procedures outlined in the NOTAM, but every pilot should contact ATC immediately if there is any question of safety of flight or in case of an emergency.

Pilots should remember some of the aircraft flying to and from Lakeland may not have radios. The NOTAM outlines the procedure for no-radio aircraft operations into and out of Lakeland, and the need for pilots of no-radio aircraft to send a post card requesting authorization from Wayne Boggs, Air

FAA SUN 'N FUN SUPPORT PRODUCTS

In addition to the FAA's NOTAM, the FAA's Office of System Safety has produced a Sun 'n Fun 2001 VFR Flight Procedures videotape and Quick Reference Booklet for Use in Flight which highlights the procedures outlined in the NOTAM. For a copy of the NOTAM, booklet, and videotape, you can call (863) 644-2431. You can also check the following Internet Web Site <http://www.sun-n-fun.org> for information. Sun 'n Fun 2001 information is also listed in the Special Airshow Section of the most recent FAA Notices to Airmen publication.

Traffic Control Tower, Tampa International Airport to operate without a radio from 0700 to 1700 local time April 6 through 14 at Lakeland. The NOTAM explains how and what format pilots of no-radio aircraft must use to request the no-radio authorization.

Local no-radio flights are excluded from this authorization because such flights require a local briefing.

AIRSPACE

VFR pilots should pay particular attention to the airspace information given because of the proximity of the Tampa and Orlando Class B airspaces. Like in past years, special procedures will permit aircraft without a transponder to fly in designated areas of the Tampa and Orlando Mode C Veils. The NOTAM has the details including a diagram of the airspace, routing points, and landmarks to be used when transiting the airspace. As a reminder, VFR pilots still must request and receive permission to enter Class B airspace.

WAYS TO MINIMIZE RISK OF MIDAIR COLLISION

All pilots need to pay attention for other traffic as they approach the Lakeland area. Since there is such a performance mix among the thousands of different types of aircraft flying to, through, or in the Lakeland area during this period, there is an increased chance of a mid-air collision risk. One way to reduce that risk is to fly with your landing lights and beacon or strobe lights on within 30 miles or so of Lakeland. If you are flying on an airway, you might want to extend that lights-on distance. Pilots need to be alert for traffic from any direction as they approach Lakeland. You should also monitor the appropriate ATC frequencies listed in the NOTAM when flying within the central Florida area. Everyone should use the appropriate altitude for the direction and type of flight, IFR or VFR.

Pilots should keep their heads out of the cockpit as much as possible while operating near Lakeland. The Lakeland area during Sun 'N Fun is not the place to learn how to program your new GPS unit. The life you save might be your own.

Pilots should expect the unexpected because some pilots will fail to read the NOTAM, some will forget what they have read, and some will simply do something dumb. The key to your flight safety is to keep your eyes open and be prepared to react to the unexpected.

The NOTAM not only outlines the procedures to be used during the peri-

Additional Information Resources

SUN 'N FUN EAA FLY-IN

Sun 'n Fun EAA Fly-In Incorporated's Internet website provides not only the history of the event, but all of the current information you may need or want to attend the fly-in. The website traces the history of the Fly-In from its conception in 1974 through the present. The website also provides information about on-site accommodations at the Fly-In for those who want to camp on the grounds. In addition, the website lists things to do; places to stay including hotels, motels, bed & breakfasts, apartments and condominiums, and recreational vehicle sites; civic information; how to drive and fly to the Fly-In; and information on neighboring airports and facilities.

For a first-time visitor, the website is a great source of information. The Sun 'n Fun 2001 website has something for everyone. The address is <http://www.sun-n-fun.org>. Located on the Lakeland Linder Regional Airport, the mail address for Sun 'n Fun EAA Fly-In. is P.O. Box 6750, Lakeland, FL 33807. The telephone number is (863) 644-2431.

LAKELAND LINDER REGIONAL AIRPORT

The Lakeland Linder Regional Airport's Internet website address is <www.lakelandairport.com>. Although designed more as a marketing tool, the site does provide some airport data.

THE CITY OF LAKELAND, FL

The City of Lakeland's website is <www.cityoflakeland.net>. The website provides information about the city, its resources, and other local data.

LAKELAND CHAMBER OF COMMERCE

The Lakeland Chamber of Commerce's website address is <www.lakelandchamber.com>. The site provides information and tourism data about both Lakeland and Polk County. Its mailing address is 35 Lake Morton Drive, P.O. Box 3607, Lakeland, FL 33802. Its telephone number is (863) 688-8551

od of April 6 through 14 for Sun 'n Fun, it also provides detailed information including charts of the arrival and departure procedures for all types of aircraft expected to operate into and out of Lakeland during this period. An important part of these procedures is the designated altitudes, airspeeds, and arrival and departure areas for the various types of aircraft expected at Sun 'n Fun. It is important for every pilot to follow the procedures outlined in the NOTAM to minimize the risk of hitting another aircraft. No ultralight vehicle, for example, wants to be at the altitude designated for a fast warbird inbound to Lakeland for landing. The two just don't mix.

ELT MONITORING EN ROUTE

Pilots flying to and from Lakeland should periodically monitor 121.5 MHz on their radio en route to check for any activated emergency locator transmitters (ELT) that might be reporting an aircraft accident. If you detect an ELT signal, contact the appropriate air traffic control facility responsible for the area you are in with the information. Please keep a record of when and where you first heard the signal and when and where you lost the signal. It might be a false alert signal, but it could also be signaling a real accident.

EXTRA FUEL

Another potential problem for some aircraft is fuel exhaustion. Because of the potential delay with so many aircraft operating at Lakeland, including the risk of an accident on the field which might close the airport for a while, all pilots should make sure they have enough extra fuel on board for the flight including the appropriate IFR or VFR minimums plus enough fuel for an inflight hold of at least 30 minutes or more. This is a case where the more fuel, the better. Just stay within your approved weight and balance limitations. You may want to make an intermediate landing before Lakeland just to refuel to ensure you have adequate fuel on board.

In addition to an adequate fuel reserve, you may want to have an alternate plan and destination in mind in case you can't get into Lakeland because of an accident or an enroute delay that might cause you to miss the field-closing deadline for the airshow.

FLIGHT PLANS

In addition to allowing yourself extra fuel, VFR flights on a filed and opened flight plan are asked to extend their projected flight plan estimated time of arrival by 30 minutes to compensate for any unexpected traffic delays.

All pilots (IFR AND VFR) should review the flight plan filing and closing procedures in the NOTAM.

IFR PROCEDURES

There are special IFR procedures during this period for both IFR traffic going into and departing Lakeland as well as special procedures for southbound IFR traffic crossing Charleston (CHS) via V1.

Airfiles and changes of destination from airborne flights to Lakeland Linder Regional Airport (LAL), Plant City Municipal Airport (PCM), Bartow Municipal Airport (BOW), Lake Wales Municipal Airport (X07),

MOTEL-CAMPING-TRAVEL INFORMATION

As we said last year, if you are planning to attend this year's event, and you have not made your motel reservations, you are rapidly running out of time. If this is your first Sun 'n Fun Fly-In, it is worth knowing that many visitors make their next year's reservations before they check out of motels each year. It is easier to cancel a reservation than it is to find one a month or two before the Fly-In.

The Sun 'n Fun website provides data on both local accommodations and on-site airport camping.

The Lakeland Chamber of Commerce and the City of Lakeland can provide information on staying in the Lakeland area. The Chamber can also provide information on local tourist attractions such as Disney World which is about an hour away.

Since Lakeland, located in Polk Country, is about half way between Orlando and Tampa along Interstate Route I-4, many people stay in the Orlando and Tampa areas and drive to Sun 'n Fun. The drive time from both areas is normally less than about an hour or so. The drive time from Tampa is less because the Lakeland airport is on the Tampa side of Lakeland.

Depending upon where you are coming from, a new Polk County Expressway also makes it easy to drive to Sun 'n Fun. That is the good news, the bad news is the expressway is a toll road.

Road signs are posted along Interstate I-4 and other primary roads showing directions to the Fly-In.

and Winter Haven Gilbert Airport (GIF) will not be accepted except in emergency situations.

An IFR slot reservation system is in effect during this period for all domestic non-scheduled IFR arrivals and departures to or from the Lakeland Linder Regional Airport (LAL), Plant City Municipal Airport (PCM), Bartow Municipal Airport (BOW), Lake Wales Municipal Airport (X07), and Winter Haven Gilbert Airport (GIF). The NOTAM tells how IFR pilots can request an arrival or departure slot to or from these airports.

IFR pilots need to review the VFR Sun 'n Fun-Lake Parker Arrival and Departure Procedures because they may have to discontinue their IFR approach and enter a VFR traffic pattern for landing. When the ceiling and visibility at Lakeland is reported at or above 3,000 feet and five miles, pilots on IFR flight plans should expect a vector to the vicinity of Lake Parker for a visual approach using the published VFR Sun 'n Fun-Lake Parker Arrival Procedure.

IFR flights retaining their IFR clearance until landing must contact Tampa Approach on 120.65 after exiting the runway to cancel their IFR clearance.

VFR PROCEDURES

Inbound VFR flights are asked to close their flight plans in flight before landing because of possible delays in getting to parking in time to close their flight plans on the ground.

Pilots are requested to ensure the color of their aircraft is included in the remarks section of their VFR flight plan.

MAINTAINING SAFE FLYING SPEEDS AND OTHER SAFETY NOTES

Because of the mix of traffic, all pilots might want to practice flying their aircraft at its minimum safe—the operative word is SAFE—airspeed, before arriving at Lakeland. Whether you do it at home on a practice flight or en route to Lakeland, you should be able to control your aircraft safely at its slowest recommended airspeed, its normally recommended cruise airspeed, and at a faster than normal cruise airspeed. The reason is you may be mixed in with other aircraft that may be flying slower or faster than you might normally fly. You may also need to be able to maintain your place in trail of other aircraft. But as the NOTAM states, if you cannot safely reduce airspeed to follow slower traffic, inform ATC and do not, we repeat do not, fly at any airspeed that jeopardizes your safety of flight.

The NOTAM explains in detail with charts and text the modified VFR arrival procedures in effect during Sun 'n Fun at Lakeland. All pilots need to review these procedures before arriving in the Lakeland general area because even IFR flights may be directed to follow the VFR procedures when the weather is VFR at the airport.

Because of the various planned flight activities at Lakeland during Sun 'n Fun and the special operating restrictions in effect during the Fly-In, including when the airport is closed because of the daily air show, all pilots need to review the NOTAM for such items as ATIS information, area air traffic control frequencies, VFR holding procedures, airport operating hours, arrival altitudes, recommended airspeeds, arrival and departure routes, airport surface operating procedures, airport safety notes, parking notes, radio frequencies, and the many other operating procedures listed in the NOTAM. Pilots should also review what areas to avoid when arriving and departing Lakeland. Remember reduced arrival and departure separation standards will be in effect during Sun 'n Fun so aircraft will be operating closer than normal.

Pilots should also bring their own tie-down gear and anchors if at all possible. With an expected 10-12 thousand aircraft operating in and out of Lakeland airport during this period, a pilot can't be overly prepared.

It is also a good idea to carry some type of survival kit. This is especially important if you are flying through either rough terrain or from a very cold weather area. The basic survival rule of being dressed and prepared to walk home regardless of the conditions and weather is always a good one.

Sun block, shorts, T-shirts, and rain gear should round out your "survival" items.

Pilots flying aircraft that may still have a "winterization kit" installed or which might have winter weight oil installed might want to review their aircraft operating handbook for recommended operating procedures for Florida's warmer climate.

FINAL ELT CHECK

After landing and before securing your aircraft, all pilots in radio-equipped aircraft should do a final radio check on 121.5 MHz to check for an inadvertent emergency locator transmitter (ELT) activation. With the large number of aircraft attending Sun 'n Fun, you can imagine the difficulty in finding the source of an ELT signal or the possible number of inadvertent ELT signals.

FAA SAFETY CENTER—WEATHER TO GO

While at Sun 'n Fun, visit the FAA's Safety Center for all your aviation needs. The FAA Safety Center has a temporary Flight Service Station available for your weather and flight planning needs; Flight Standards aviation safety inspectors from the Orlando FSDO are available to answer your piloting or airworthiness questions or to issue certain certificates; and various FAA displays and exhibits as well as an ongoing schedule of FAA and industry safety presentations are available in the building. Many of the safety forum presentations are given by nationally known aviation speakers.

The FAA Safety Center Forum area and Production Studios open daily at 8 a.m. For those who arrive early, the first day of FAA Forum presentations starts on April 7, the day before Sun 'n Fun officially starts. In addition, for those who cannot attend a desired safety presentation, many of the presentations will be broadcast within the airport area by Sun 'n Fun Radio, WPEP 788 at 1510 on your AM radio dial.

I See It, But It Feels Wrong!!!

by Johnny Summers

I remember the first time I experienced spatial disorientation. I was flying with Jim Gregoire in a Bell *Jet Ranger* outside Olympia, Washington. It was a beautiful day—I know many of you do not believe there are beautiful days in Washington, but this one was—and I was under the hood being vectored to an ILS final to Gray Army Airfield. We were flying over the Puget Sound, so the ground references that I normally cheated with through the chin bubble were not there. I started a right turn and began pushing down the nose. I felt as if my nose was climbing and the aircraft was turning to the left, so I was making corrections. Jim asked me, "Do you see what is happening?" I said I did, because I did. I was cross checking my instruments like a mad man and I saw exactly what my instruments were telling me, but I could not persuade my arm to move the controls to correct it. Jim let it go for a while and then took the aircraft to fix the problem. I took the hood off and, low and behold, the aircraft was recovering from the attitude that the instruments said we were in—not the attitude my mind thought I was in. The next day my arm was sore from fighting the contradictory sensations I was feeling.

So, what happened? The human body has an excellent system of balance to keep us from failing down all the time. The problem is that system was designed to work when we have both feet planted firmly on the ground. Since pilots spend as much time as possible in the air, this system does not work as well. So now we have two choices, we can either work to get a design modification or understand and work within our limitations. Since I do not think a "Human B Model" is likely, how can we work within our limitations?

First, we must understand that we have three systems that keep us oriented. Eyesight is the most predominant and accounts for 75 to 80% of the information our mind processes. Next, the vestibular system is the inner ear telling us if we are upright, turning, accelerating, or decelerating. Finally, the kinesthetic sense, which is commonly called "seat-of-the-pants," is your joints and body tissue feeling gravity's forces. When all three of these systems are synchronous, you feel comfortable with your attitude.

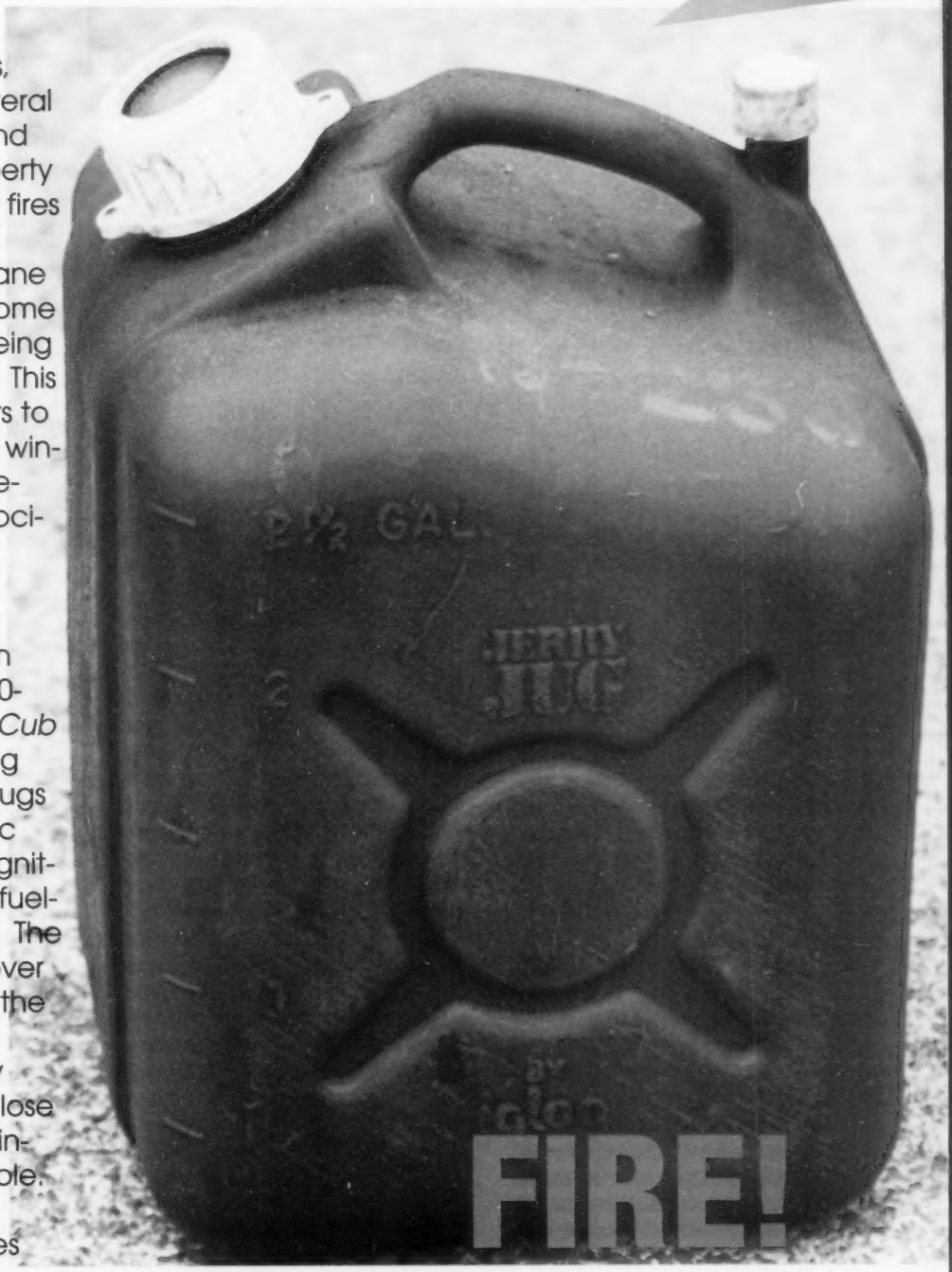
Comfortable does not mean you are out of danger. There are two types of Spatial Disorientation. Type 1 is where you are unaware that you are spatially disoriented, and Type 2 is where you know you are disoriented. If you are spatially disoriented, it is critical for you to be Type 2 disoriented. If you are unaware of the situation that you are in, it is impossible to fix it! A good and continuous cross check of the instruments will normally keep you out of Type 1 disorientation, since your eyes are the sense you rely on the most. If you "see" something that "feels" funny, it will alert you to the fact that things aren't right. Identifying that you have a problem is crucial to survival. Believing what your instruments are telling you is vital for recovery.

So once you are in the air, recognition is important. But, how do you prevent becoming disoriented. The answer for this is the same as most other mishap avoidance planning. Pilots who take off in marginal VMC or try to push decreasing weather can find themselves in a situation that is disorienting because they "get behind" the airplane. They find themselves spending more time trying to navigate or find maps and frequencies to help them get home, and less time flying the airplane. I like to say, "Plan on things going wrong, then you are ready if they do and happy if they do not." If the weather is marginal, plan on the possibility of going into the cloud; if you are not instrument rated, take that into account when evaluating weather and stay on the ground a little longer. Spatial disorientation does not discriminate based on experience or ratings.

Why was that lesson I learned over the Puget Sound in Washington so important to me? It is important because 90% of all spatial disorientation accidents are fatal.

Johnny Summers is an Aviation Safety Counselor for the Fort Worth (TX) FSDO. This originally appeared in "The Fort Worth Wings" *newsletter.*

Static



Aircraft Destroyed, Hangars Destroyed!

In the last few years, we have heard of several incidents of aircraft and hangars or other property being lost because of fires caused by static discharge while an airplane is being fueled or, in some cases, where fuel is being drained from aircraft. This phenomenon appears to be the most severe in winter, but this is not something that is solely associated with the colder months.

Several years ago in mid-July on a warm 70-degree day, a *Super Cub* caught fire while being refueled from plastic jugs at Lake Hood. A static electricity discharge ignited the fumes while refueling was taking place. The pilot received burns over most of his body and the aircraft was saved because of the timely help of an operator close by who had a fire extinguisher readily available.

The following articles from Alaska, New Zealand, and Canada explain how this happens and the need for proper bonding of the aircraft.

Static

"Don't Take Any Static"

by Bill Missal

Static electricity is a phenomenon that occurs whenever two objects or substances come in contact with each other and then are separated. The separation action causes an electric charge to build between the two objects. The charge remains in a "static" condition, unless and until there is an avenue for discharge. The discharge usually occurs rapidly and is seen as a spark between objects. If the static does not discharge rapidly, it will slowly dissipate over time, but this is dependent on several factors and may not be predictable. The static charge will not build up, however, if the two objects are connected by a bonding wire that keeps them at the same electric potential.

When this initial separation occurs, an electric charge can also build up between either of those two objects and others that are in the area. This secondary charge, which may be at a different level than the primary charge, remains until there is an avenue to equalize the difference. If any of these objects comes close enough to another, those two will discharge and a spark will occur. However, other static charges that have built up might not be equalized and may still exist. Again, it is important to know that a static charge will not build up between any two objects that are electrically bonded to each other even though charges have developed between surrounding objects.

Natural Static Conditions

One of the most frequent natural static conditions occurs during rain. The action of water droplets separating from clouds and from each other as they fall causes an electric charge to develop between the clouds and the droplets. The droplets carry this charge to the earth's surface which then has a different electric potential from the cloud. Either the cloud or the ground can be either positive (+) or negative (-). The electric charge on the surface is usually equalized across the ground by the layer of water that is left as the droplets spread out over the rocks, buildings, vehicles, etc. However, the electrical difference between the cloud and the surface is not equalized. Also, as the cloud moves along, driven by the wind, this charge moves with it, even after the rain has stopped. Any objects on the ground, such a building, fuel tanks, and vehicles, are affected and develop that same electrical difference with the cloud as it passed overhead. In addition, other objects that are not electrically bonded to the ground and other clouds may develop a different charge level than already exits. Even if the main charge between the ground and cloud discharge through lightening, these secondary charges may remain in the "static" condition. It is this part of the phenomenon that is a hazard around aircraft that are being fueled.

Bonding

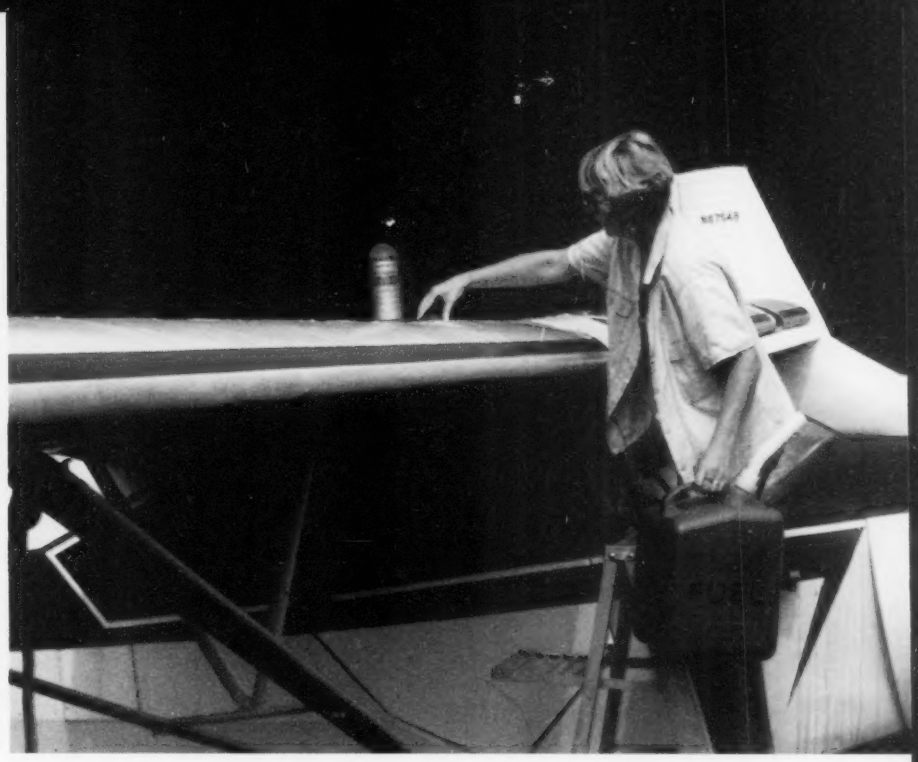
In general terms, aircraft and fuel trucks, storage tanks, fuel drums, or gas cans are not normally connected unless actual fueling is being performed. Static charges can exist between any of them at any time. If there is or has been a rain, thunder, or lightening storm, it is likely that static charges have built up and need to be dissipated. This is particularly likely with aircraft since they are usually separated from the ground and from fuel, tanks, drums, or cans by the rubber tires. This charge will not be dissipated, unless one of these objects is brought close enough to the aircraft for the electrical difference to discharge. If this discharge occurs rapidly when a fuel nozzle is being brought close to an aircraft's fuel tank opening, the spark can, and likely will, ignite the fuel vapors. If the vapors are in a high enough concentration, an explosion will occur.

To avoid this situation, fuel trucks, fuel drums, or gas cans should be electrically connected to the aircraft before being brought close to begin fueling. The proper way is by using a bonding or grounding wire. This will put them at the same electrical potential and a static charge, if it was present, will no longer exist. In fact, to ensure proper bonding, we should follow this sequence. The truck, tank, or can should be electrically bonded to the ground first. Then the aircraft should be electrically bonded to the ground. And the last step is to bond the truck, tank, or can to the aircraft before the hose and nozzle are brought to the aircraft. Any static charges that were present will be discharged through the bonding wires, and these wires will prevent additional charges from building during the fueling process. Remember that fuel being poured into a fuel tank will develop static charges just like the rain, if electrical bonding is not present.

One situation that we often encounter is the use of plastic cans to refuel aircraft. Although a plastic can itself cannot transmit an electric current, a static charge can build up between the plastic can and the aircraft or the fuel within the can and the

aircraft. A spark can occur when this charge equalizes and, again, the strength and likelihood of that spark is dependent on the amount of charge that has built up. This is much like the static charge that can build when running a plastic comb through your hair or that develops between clothing and your skin. The same cautions should be taken with plastic cans as with other fueling containers. One method is to ensure that the spout of the can is actually touching the side of the fuel tank opening at all times during the fueling. Thus, any possibility of a charge would be dissipated immediately and no spark would occur.

Bill Missal is an FAA Aviation Safety Inspector in the Alaskan Region. This originally appeared in the "FAA Alaskan Flyer."



Safe Bonding or More on Static

This article focuses on the practical steps to take to ensure safe bonding.

Static Build-up

First, we will quickly recap on the situations which foster static build-up that makes bonding necessary.

Fine filters. The use of fine filters is unavoidable within the aviation industry. The effect of having a fine filter in a fuel line is to bring more fuel in contact with a dissimilar material of the filter, resulting in higher charge separation.

Flow rate. The flow rate has an effect; higher speeds result in greater charge separation and also more fuel splashing.

Splashing. If splashing or spraying occurs during the refueling process (most likely during top-loading of a tank) a charged mist or foam can be produced.

Hot and dry. Hot and dry conditions pose the greatest atmospheric risk.

Bonding and Grounding

As stated in the previous article, bonding the aircraft means connecting the metal structure of the aircraft to earth—via a cable or other conducting path. There are three bonding or grounding connections: from the refueling vehicle to earth, from the aircraft to earth, and between the refueling vehicle and the aircraft.

Fuel company safety procedures generally have a statement along the lines, "the aircraft, fueling vehicles, fueling cabinets (gas pumps), hose trigger nozzles, and funnels must be electrically bonded together throughout the fueling operation to ensure that no difference in electrical potential exists between the units."

In recent years there has been a change in philosophy and practice with regard to grounding. In the 1990 edition of the U.S. National Fire Protection Association Standard for Aircraft Fuel Servicing (NFPA 407), the requirements for grounding were deleted and requirements for bonding clarified.

The Standard notes that the primary electrostatic generator is the filter-separator, which increases the level of charge on a fuel by a factor of 100 or more compared with flow rate. Splashing, spraying, or free-falling of the fuel will further enhance the charge. When charged fuel arrives at the receiving tank, either the charge will relax harmlessly to the ground, or, if the charge is sufficiently high, a spark discharge may occur. Whether or not ignition will follow will depend on the energy (and duration) of the discharge and the composition of the fuel-air mixture in the vapor space, i.e., whether or not it is in the flammable range.

No amount of bonding and grounding will prevent discharges from occurring inside a fuel tank. Bonding will ensure that the fueling equipment and the receiving tank are at the same

potential and provide for the charges separated in the fuel transfer system (primarily the filter-separator) to combine with and neutralize the charges in the fuel. Also, in overwing fueling, bonding will ensure that the fuel nozzle is at the same potential as the receiving tank, so that a spark will not occur when the nozzle is inserted into the tank opening. For this reason, the bonding wire must be connected before the tank is opened.

The NFPA 407 standard outlines that grounding is no longer required because it will not prevent sparking at the fuel's surface. Also the static wire may not be able to conduct the current in the event of an electrical fault in the ground-support equipment connected to the aircraft (e.g., a ground-power unit or generator), and this could constitute an ignition source if the wire fuses. (Separate grounding connections must be made for equipment that requires electrical earthing.) Static electrical grounding points may have high resistances and therefore are unsuitable for grounding.

Bonding Procedure

So, what are the practical steps to ensure adequate bonding when refueling? Fueling from a tanker is normally carried out by qualified oil company personnel. Refueling by pilots is mostly carried out from a fixed cabinet (gas pump).

Fixed Cabinet

- Unreel the bonding cable supplied beside the cabinet and connect the clip to a bare piece of metal on your aircraft. This should be completed before any hoses are connected or tank filler caps are opened.

- Equalize electrical potential by touching the nozzle to the metal wing surface or fuel cap before opening the cap. (Nozzle clips are no longer supplied at avgas pumps, as fuel flow rates are low—the current oil company requirement for a nozzle-bonding wire is for flow rates exceeding 200 liters/minute.)

- Keep the nozzle in contact with the side of the filler neck while refueling. (To avoid scratching the paint on the wing, use a mat, or take care to hold the nozzle clear and not rest it on the wing.)

- Keep the flow rate down in situations that you think may warrant further precautions (e.g., hot and dry conditions).

Helicopters are sometimes refueled while sitting on wooden trolleys. Other refueling situations sometimes occur, such as refueling in the field from small trailer tankers, drums, or portable containers. In all situations, careful attention to bonding and to the other precautions listed above is essential. It is important that specific instructions are available (preferably at the point of fueling) appropriate to the type of refueling taking place.

Portable Containers

Some small aircraft, such as ultralights and some homebuilts, can be fueled with autogas. (The following advice is also applicable when you are at a service station filling cans for your outboard motor, lawnmower, etc.)

- Turn off the vehicle engine and extinguish cigarettes.

- Use an approved container.

- Place the container on ground.

- Keep the nozzle in contact with the container inlet during fuel transfer. (This is particularly important when refueling jetskis, etc., that have to remain on a trailer.)

- Keep the rate of flow down; never lock the nozzle trigger in the open position.

- Do not fill the container more than 95 percent full.

Similar precautions should be taken when draining fuel, which should be done outside, not inside the hangar.

Funnels

The U.S. Standard (NFPA 407) states that plastic funnels or other non-conducting materials can increase static charge generation. The use of chamois as a filter is extremely hazardous.

Composite Aircraft

A composite aircraft is more likely to develop and sustain a static charge because of the low conductivity of the fiberglass structure. Many homebuilders attach an internal grounding wire from the tank filler neck to an appropriate metal point on the aircraft that is able to have a grounding clip attached. It is also wise to take the precaution of touching the hose nozzle to the metal filler neck or cap before removing the tank cap. Keep the nozzle in continuous contact with the filler cap.

Recent research in the United States has shown that wiping a water-soaked rag over the wing surface around the fuel cap of a composite aircraft—where static charge is likely—will dissipate the charge.

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Plastic Funnel Ignites While Refueling

"If you aren't sure about the plastic refueling equipment you are using, then use metal cans and funnels."

A horror story on refueling practices concerns the pilot of a Cessna 172, who performed an act of environmental friendliness during his preflight check by draining about a liter of fuel from each tank into a metal can. The fuel appeared clean and free from water so he decided to pour it back into the aircraft tank, using a plastic funnel with a chamois wired to the funnel in an attempt to dissipate static. While pouring the fuel he noticed flames around the filler neck. He managed to put them out using the entire contents of one fire extinguisher and most of a second and suffered third degree burns to one hand.

Although the aircraft was inside a hangar with fans running overhead, the air was cold and dry, so probably the draining and general sloshing around of the fuel in the can caused a charge to build up in the fuel, the chamois, the plastic funnel, and possibly on his person. These were ideal conditions to create a spark that set off the fuel vapor in the funnel and around the filler neck.

The Shell Oil Company has stated that polyethylene plastic containers and funnels should not be used for refueling aircraft. Plastics have insulating properties, which can accumulate static charges. High-density polyethylene containers made from pure material are okay, but you must take extra precautions and there are certain standards to adhere to. If you aren't sure about the plastic refueling equipment you are using, then use metal cans and funnels. These are safer, if used properly.

Here is a synopsis of another horror story published in *Heliprops*. The pilot/owner of a Luscombe was using a 16-gallon plastic polyethylene jug rigged with a Schrader valve to dispense gas by air pressure having already transferred more than 400 gallons by this method without incident. On this fateful occasion he was using the local service station gas pump. The 16-gallon jug was behind the driver's seat of his car. He was using a plastic funnel with a metal screen. He lifted the funnel to check the contents, then added a bit more fuel. As the fuel stopped running, he lifted the gas nozzle to avoid spilling the last few drops. Suddenly the gas in the funnel burst into flames. The fire quickly spread out of control. Ignition was probably from static electricity in the swirling gasoline, and discharged through the funnel to the grounded hose. The pilot received extensive burns and took four months to recover.

Here I should mention ultralight refueling methods. Most ultralight refueling I have observed appears dangerous, particularly if we consider the hazard criteria described above. Ultralight publications never deal with this subject, nor have I ever heard of an ultralight refueling fire. This begs the question, what are the ultralight pilots doing that is different? I see them using plastic funnels and cans. I see them refueling without a ground wire. I see fuel spills around and over the aircraft. I can think of only two major differences: the addition of oil to the fuel and possibly smaller-sized containers. Does this means we may see ultralight refueling fires when more machines have oil injection or four stroke engines that require an oil free gasoline?

There seems to be an element of luck in transferring gasoline that breeds complacency. The long transfer of over 400 gallons without incident certainly trapped one unlucky pilot! I would hazard a guess there are many pilot-rigged fuel systems out there just waiting for the right conditions to go "BANG!"

This article originally appeared in Transport Canada Aviation's newsletter, the Aviation Safety Maintainer.

In Dieting, You Can't Fool

All pilots accept as fact the four forces limiting operation of an aircraft: thrust, lift, drag, and gravity. The same for the "envelope" and near-absolutes in the operations manual such as stall speed, never-exceed speed, fuel consumption, rate of climb, maximum weight, and so on that are specific for each aircraft.

These figures have been carefully determined by testing. Each obeys the laws of physics, which cannot be changed. There are no loopholes. (The absolute-of-absolutes law is the speed of light, which is 186,282.3976 miles per second—our best measurement.)

Unfortunately, when it comes to dieting many pilots resort to "magical thinking" and ignore the laws of thermodynamics that govern the way our bodies burn fuel. Fuel taken in (food) is either burned or stored according to our individual set-point metabolic rate and how much we exercise. (Einstein's famous equation is the oversimplified $e=mc^2$). A simple formula for weight maintenance would be energy in should equal energy burned.

The answer to weight control can be broken down into diet plus exercise. The reason a third of us in the United States remain obese is that dieting (and maintaining proper eating habits) takes so many weeks or months of self-discipline that we are willing to believe just about anything from outrageous magazine articles to junk-science best-selling books.

Hordes of frustrated dieters—probably millions—are desperately seeking a quick fix. The current diet craze comes from four or five pop books on dieting. Although the food manipulations in the books have been highly criticized by all the major health organizations, they are best sellers and millions are following their advice. Why? The main reason is that the diets work; people do lose weight—lots of it, but mostly water and muscle in the first few weeks. A careful analysis shows that each and every diet is actually low-calorie. Here are the major ones and the reasons they are not only based on false premises but also are dangerous if followed for a long period of time.

High Fat/High Protein: Some plans recommend up to 40-60 percent fat (cream, butter, bacon, cheese, pork, etc.) and very low carbohydrates—"ham, eggs, bacon, and butter for breakfast; hold the toast." A high-fat diet will surely work at first because it is filling and produces ketosis, which causes decreased appetite—and foul breath. Someone with ketosis is already somewhat sick. A high fat intake eventually wreaks havoc with your cholesterol and triglycerides. The diet books boast of a reduction in cholesterol. This is probably a result of weight loss, not gorging on fat.

High Protein: Excess protein puts a heavy load on the liver and kidneys. It also causes excessive excretion of calcium, which may later result in osteoporosis. Many proteins are also high in fat (beef, pork). Also, not to be ignored is the high price of protein, making it difficult for low-income people to follow. ("Let them eat filet mignon.") There is more obesity in poor people than in the affluent.

Low Carbohydrate (the "sugar bashers"): The premise of this diet is that sugar, not fat, is the villain in obesity. It is based on the glycemic index (long abandoned by the American Diabetic Society as not a practical consideration). This index is a measure (compared with pure glucose) of how fast a food is absorbed as sugar (glucose) into the blood. Examples of foods with a high glycemic index are sugar, white bread, pasta, carrots, potatoes, bananas, corn, and rice. (A surge of glucose into the blood—such as by eating jelly donuts, orange juice, and toast and jelly for breakfast—does cause a release of insulin that jolts the blood sugar to much lower levels, often causing jitteriness or headache.) However, the glycemic index is no longer thought of as a "breakthrough" in dieting. High glycemic foods have practically no effect if combined with proteins, complex carbohydrates, and fats—from a normal diet.

But, since part of the effect of insulin is to store food as fat, the false conclusion was made that the cause of obesity is development of insulin-resistance by too much sugar (and simple carbohydrates) in the diet. The truth is just the opposite: Obesity causes resistance to insulin. Even protein causes production of insulin. Huge meals really cause a spike of insulin. The solution is to eat smaller meals, maybe five or six a day instead of three. A really bad plan is to eat no breakfast, have a light lunch, and gorge on dinner.

So, what is the best way to diet permanently and safely?

Here is something you can believe in. Since 1985, every five years a federal advisory committee composed of widely recognized experts in nutrition, medicine, and epidemiology has been invited to review the Dietary Guidelines for Americans. The guidelines for the year 2000 may be thought of as "The Ten Commandments of a Healthful Lifestyle," grouped under an ABC scheme.

Mother Nature

by Glenn R. Stoutt, Jr., M.D., AME

Here are three additional common-sense principles to consider:

- Keep food safe to eat. (FDA is thinking about E. coli and salmonella especially.)
- If you drink alcoholic beverages, do so in moderation.
- (Smoking, the leading cause of preventable death, is not included, as it is not a dietary item. But, if you smoke, all bets are off. Quit.)

So simple. No $25 books. No hype. No incorrect pseudo-science or quackery. Most of the information has not been essentially changed since 1980. The guidelines are the cornerstone of federal nutrition policy and come from the Center for Nutrition Policy and Promotion, US Department of Agriculture, May 30, 2000. They reflect sound advice from a consensus of the most current science and medical knowledge available.

You must eat a variety of foods in a balanced diet that includes all food groups to ensure that you are getting enough phytochemicals (plant chemicals), vitamins, fiber, and minerals in addition to the recommended amounts of carbohydrate (50-60 percent), fat (no more than 30 percent), and protein (about 15 percent.)

Even if you have been on one of the unscientific and unsafe diets for a few months and have lost weight, now is the time to try this foolproof eating plan. Limit your meals to these food choices only until you have attained your optimal weight. The cornerstone of any lifelong eating plan should be fresh fruit and vegetables and lots of fiber. Also, skim milk; skinless chicken and turkey; fish; fat-free margarine, yogurt, mayonnaise, and cottage cheese; whole-grain cereals and bread. Load up on deeply-colored vegetables such as spinach, kale, carrots, squash, tomatoes, peppers, and sweet potatoes. Legumes (beans, peas, and some nuts) are great—try to include them in daily meals.

Stay on this reasonable, safe, healthful meal plan for a few months and then add a few other things after you have made a big dent in your weight. For the first few months, avoid anything sweet or fat. A little olive oil on salad is OK, just not a bottle full. You can occasionally have any calorie-laden food you wish, but you must cut down on the rest of your calories to make up for it. Then follow the Food Guide Pyramid's proportions to meet your caloric needs.

Remember: To lose a pound of fat, you must burn 3,500 calories. This means that if you take in 500 fewer calories per day for a week you will lose a pound of fat. Rapid-loss diets cause you to lose muscle and water. You don't have to diet for life, just make proper food choices for life...and exercise.

Yours for good health and safe flying.

Note: The views and recommendations made in this article are those of the author and not necessarily those of the Federal Aviation Administration. This article originally appeared in the Fall 2000 The Federal Air Surgeon's Medical Bulletin.

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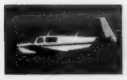
"Ten Commandments of a Healthful Lifestyle"

- Aim for fitness.
- Aim for a healthy weight. (Easy. Just undress and look at yourself. How do your clothes fit?)
- Be physically active each day. (At least 30 minutes of moderate exercise three or four times weekly as a minimum. Try for 30-45 minutes most days. Do at least 10-15 minutes of weight or strength training three times a week.)
- Build a healthy base. Let the Pyramid—the core of all nutritional advice—guide your food choices. (This is the only major revision from 1995.)
- Choose sensibly.
- Choose a variety of grains daily; especially whole grains.
- Choose a variety of fruits and vegetables daily.
- Choose a diet that is low in saturated fat (less than 10 percent) and cholesterol and moderate in total fat (less than 30 percent).
- Choose beverages and foods to moderate your intake of sugars.
- Choose and prepare foods with less salt



LEARNING TO FLY (AGAIN)

by John Zenger

Much has been said and written in the industry about pilot shortages, specifically CFI shortages and the state of today's entry-level general aviation training. This article, the first in a series tracking a real student pilot's training, is both typical and atypical. When I learned to fly some—well, some time ago—the airport and the school I went to was happy to see me and bent over backwards to accommodate me, even nurture me. Maybe they were just happy to get my money, but the important difference was they didn't make me feel that way. I'm not hearing that anymore from student pilots, and I'm hoping it's just a temporary aberration.

The names and places in this article have been changed or removed to protect the innocent and the guilty, and we, by no means, intend to intimate that all flight training is like what this student has experienced and is continuing to experience, as you'll see in future articles. Why, you say, would an FAA publication publish a negative article about flight training? I don't see this as negative. It's a slice of reality that does occur and can turn off the very people aviation needs to ensure its future. Hopefully, a minority of flight schools and a minority of instructors will recognize the behaviors discussed here and will do something about it. And student pilots, especially if you're among today's newly prosperous, not everything requires instant gratification. Sometimes the things worked hardest for are the most rewarding.—Editor

I roll the Cessna 150 to a halt in front of the little white building at mid-field. Jerry, my instructor, should be standing there, ready to cut the tail off my shirt. I have just completed my first series of solo, full-stop landings. Cleared the tree, flared, heard the horn, settled on mains, and lowered the nose. Perfect. Only, Jerry isn't there.

I wait. Where is he? Then he shows his head out the door.

"You're down," he says.

"Yeah! Did you see my last one? Pretty good, wasn't it? Wasn't it pretty good?" It was, I know, perfect. I await my praise.

"Didn't see it," he says. "After that first one, I went inside to call a cab."

Ah. The humor of pilots. How droll. Well, I know it was perfect, and that's good enough. And, I've done it after only nine lessons, which I think is also pretty good. Hey, why shouldn't it be? It's in my blood, after all. My father was a Navy test pilot and an aeronautical engineer. I've built and flown model airplanes all my life. I understand the basics, the physics, and the forces. Lift, weight, thrust, and drag go way back with me. But, there are other forces the would-be pilot must confront. And, though I don't quite know it yet, those forces will shortly work in such a way that my next landing will be with a different instructor. It's going to be a while, though, before that happens. Because it's 1980, and that next instructor is two years old.

The next morning, I'm looking at my logbook, as it lies on my kitchen table. It is heavy, from my 10 hours. Next to it lies my checkbook. It is light, from my 10 hours. In 1980, flight instruction with Jerry was $40. Not per hour. Per lesson. Twenty-five for the plane, 15 for Jerry. Every lesson put at least one hour on the Hobbs, and no one seemed to care how much instructor time I took.

Nevertheless, at 22, my income didn't seem enough to pay for aviation. And, as all flight students come to learn, the real power that keeps you in the air is the buoyant force of money. I'd asked around and heard pilots say, wistfully, "No, you just can't do it for a thousand dollars anymore." I could do the math and see that they were right. And, even if they weren't, $1,000 seemed like a lot of money. Well, at least I had soloed. I put my logbook away, made one of those awful "right" decisions and didn't fly again for almost 20 years.

By 1999 I was doing a little better. My old logbook had made a departure for somewhere unknown, but that was fine by me. Too much time had passed to think I was picking up where I'd left off. I'd start from scratch. The World Wide Web told me where to go and who to see. "Learn to fly!" it said, complete with names, addresses, and prices.

Prices. Dear me, I thought, things have gone up. My jolly little Cessna 150 was now a 152, and cost $60 per hour. Instructors were another $30. Oh, well. Fair enough. I was charging more for my time, too. I did the math (again) and decided I could afford it now. "Learn to fly!" the Web said. "Okay," said I, and headed for the field.

A sign on the wall marked the territory of "Windspeed Flight School." [Not a real flight school, to our knowledge. If there is, this isn't you. — Editor] I introduced myself to the man behind the counter and announced I wanted to fly.

"Sure, you can fly," he said. "Whaddaya already know?"

I thought about a logbook I didn't have, swallowed my pride, and told him, "Not much. I took some lessons a long time ago. I'm kind of starting over."

"No problem. We get lots of guys like you. Here." He handed me a stack of papers and a list of prices. "Fill this out, and we'll get you going." I complied. He took my papers and invited me into an office so we could talk.

The first thing we talked about was Windspeed's fleet of planes. They

were 172's. State-of-the-art and recent-vintage. Very nice, I was told. But, I explained, I wanted to learn in a 152. Less expensive, you know?

Windspeed's guy made a mournful face and shook his head. "Not too much time available on that one, I'm afraid." One? Well, okay. I said I'd take what I could get with the 152 and do what I had to in a 172.

Another mournful face. "We don't really like to mix them like that. Completely different airplanes. You'll be happier in the 172." Which, he did not add, cost 25% more.

As I mentally revised my math, I saw another list of prices being waved in my face. Insurance. Windspeed, it turned out, likes all of its students to buy insurance. "Most people go for this one," he said, circling the most expensive policy. Flying lessons, I began to think, aren't just about flying anymore.

I was reading the insurance pamphlet when yet another schedule of payments landed in front of me. These included a registration fee, ground school fee, course materials fee, and the cost of a "flight bag," which turned out to be too small to hold the additional books I would have to buy.

"You know," I ventured, "I'm kind of a good student on my own. Could I take the written test without going to ground school?" I didn't tell him I have a graduate science degree, or that I passed the New York bar exam on the first try. My first flight instructor, all those years ago, had just lent me a book and said, "Read this and let's see how you do."

But, this guy made that face again and shook his head. "We don't like to let you take the test unless you've had the class." Hmmm... This must be how they do it in the major leagues, I thought. And, if they won't even let me take the test...

"Okay," I said. "When can I start?" We examined their calendar, which had lots of blank pages numbered, "172." I took a stand. "When is the 152 available?" He looked unhappy, but flipped to the proper page.

"Not until next week." I took it. And the next three weeks after that. It felt like a victory. Perhaps that should have scared me.

A week later, I was in the cockpit of a slightly aged Cessna 152. Sitting next to me was "Vincent," my CFI. He also asked me what I already knew, even though my past experience was summarized on the single-sheet form filled out when I paid my registration fee.

"A bit," I said. "You'd probably better treat me like a rank beginner and, if I just seem to learn fast, we'll say it's due to good instruction." I smiled. Vincent stared at me. I stopped smiling. Any moment now, I thought, I'm sure this will start being fun. To be fair, it was barely past sunrise on a cold winter morning. To get the 152, I had to be there when the doors opened. And, of course, so did Vincent.

He began a rapid-fire inventory of the instruments, most of which I still recognized. He touched each one, telling me its name. "Altimeter, dee-gee, vee-ess-eye," and so on. The

central stack came last. Vincent put his finger on a radio, next to the word, "LORAN."

"Gee-pee-ess," he said. I said nothing. I was here to learn, after all.

Eventually, we took off. He was a pretty good instructor, but I had the impression he wasn't used to the early hours. On a heading of 040, he told me to turn left and come to 170. Kind of the long way around, but Jerry used to have me practice 720-degree turns. I began the bank. About when we crossed through 240, Vincent asked me what I was doing. Turned out, he had meant to say, "270." He made the same mistake a few more times during that flight, but I just came to whichever heading was first to match the last two digits he spoke, and it seemed to work.

During the flight, we had to holler at each other, just as Jerry and I always had, in 1980. During the intervening years, the use of headsets and intercoms had, unbeknownst to me, become standard practice. Vincent seemed surprised that I didn't have one. Well, I explained, no one had mentioned the need for one. Back on the ground, Vincent showed me a catalog with pictures of a popular brand in a distinctive color. "These are what everybody has," he explained. These, I saw, were what you could buy with that spare several hundred dollars that was cluttering up your wallet.

The next morning, I called Windspeed and asked about borrowing one. Its owner was kind enough to take my call, telling me, "We don't have them to lend out. They'd get broken. You'll have to buy one." I asked if anyone ever sold them on the used market. "Maybe," he said. And, indeed, I bought one on the used market. It was broken. Five minutes later, after fixing it, I had my own headset.

Flying at the crack of dawn means not having anyone to call for a report on conditions at the airport. One morning, Vincent decided the crosswind was too strong to fly. To use the time, I paid for an hour in an instrument simulator (and, of course, an hour with Vincent). Now, I am told that up to 10 hours can be logged towards an IFR license with this exact same machine. I also understand that instrument skills are necessary to a VFR certification. But, wiser heads than mine have decided that simulator time cannot count towards the entry-level Private Pilot license. Which, as it happened, didn't much matter, because the simulator seemed to lock up in a configuration that had me descending at 1,800 fpm, flaps up, nose-down, full-throttle. Vincent took the yoke, and we had quite an amusing chat as the simulator ignored his inputs, all the way to the virtual ground. Perhaps real flying on instruments is somewhat different, which would explain why the simulator hour we wrote in my log book was, and is, of no value to me whatsoever.

I bought four flight lessons from Windspeed, but that wasn't all they taught me. I had paid for ground school, too. There were four of us, for a while. Then three. Somewhere in the middle of learning the umpteenth METAR abbreviation, I sensed that some part of my brain had not yet turned into granite, and that I wanted to keep it as it was. I asked the ground instructor if I could take the test on what I had learned so far, plus some home-study, and he agreed. It is, to this day, the only class from which I have ever dropped out.

Back at the field, waiting for my turn with the 152 on a weekend, I was browsing a copy of its handbook. I skimmed the various specifications, wondering if it would be practical to fly it to visit out-of-state family members on weekends. Among those numbers was, of course, information on weight limits. The 152 has a very modest carrying capacity. Then again, it is only a two-seater. Still, the number looked low, to me. I got out pencil and paper, asked Vincent how much a gallon of fuel weighed, and did the math. (I won't recite the actual figures here, as this is not an article on computing such things, and I wouldn't want anyone to rely on my math. Pilots should, of course, do this on this own.)

We were over. We were a lot over. And we always had been. I showed my numbers to Vincent and asked if I were wrong. He looked at the book, then at my notes. Then he did his own figures. Then he found a pocket calculator and did it again. His number didn't agree with mine, exactly. But, even by his figures, we were substantially over the limit. Another CFI overheard us and offered to try her own hand at it. She also came up with a different figure but agreed that we were too heavy. Apparently, Windspeed's 152 had optional fuel tanks with extra capacity. Topped off, as all properly maintained planes with rigid tanks will be at the end of every day (and, therefore, as they will be at dawn's next crack), the little 152, all its fuel, Vincent, and I were just too damned heavy.

"Uh, Vincent. What can we do about this?" He plucked a price list from a stack on Windspeed's front desk.

"You could move up to a 172. It's pretty much the same plane, really." A contradiction to what the owner had told me.

I went home. My wife, who is also my financial advisor, and I had a talk about it all. She has no interest in airplanes, though she's pleased to let me do whatever amuses me—within reason. She asked good questions, such as how many hours I would need and how many I already had. Then she asked me how much I had spent so far. I answered. What Liz knows about aviation she mostly learned by watching a close family friend—who says he only has a hundred dollars to his name—lose his marriage, but keep his plane. Priorities like that make her nervous, and I think rightly so.

I told her the truth: adding registration costs, school costs, a headset, books, simulators, flight bags, and all the rest, I had already spent almost a thousand dollars. And, now as in 1980, it felt like a lot. For my investment, my logbook duly certified every moment of my 3.9 in-flight hours.

"Sweetie," she said, "this is dumb."

In the morning, I bid farewell to Windspeed. But, I kept my log. Because, this time, I wasn't going to wait another 20 years to start again.

End of Part One

The Secret To Being An Absolutely Great Flight Instructor

by Jim Trusty

What is the secret to being an absolutely great teacher/flight instructor? First, before you can teach anyone anything, you have to know how they learn. That's correct—how they learn. This applies to all ages, kids and grown-ups alike.

In your initial interview with a candidate, you should start asking questions such as, "What do you think that you do best? How did you learn to do it? What is your hardest thing to do? How did you learn to do this? What do you enjoy most about learning to fly: reading the material, seeing it on the blackboard, watching a video, listening to me talk, riding in the backseat while another student flies, actually flying yourself?"

With the answers to these questions, you can figure out the combination to design a learning syllabus just for this student, and it will work.

As a classroom teacher, I always hated it when the classes got so big that I could not put this practice into use. If you can only teach one method for a roomful, then you are actually reaching some of the students some of the time, but never all of the students all of the time.

Draw up a generic syllabus from the regulations and then blend this around to reach your students. This is how we can turn out good students almost all of the time. Even knowing how they learn does not necessarily mean they have speed and endurance. It may be that you will have to improve on the way they learn in order to allow more room in their head for information. How? Make them want it. Make it interesting. Make them the central character in everything that takes place. Make them feel it simply cannot work without their input, their paperwork, their correct answers, and their planning. Then if learning to fly is what they want to do, they will perform above the standards they previously set for themselves.

Our job is to be teachers—not demonstrators. Make them do every single maneuver from start to finish without any help and, when they make a mistake, talk about it and talk about how it can be corrected. Then let them do the whole thing all over again. (Secretly, I call this "fetch Rover, fetch," but it works.) If you ever have a chance to speak with one of my students, they will tell you quickly that not only did they do all the work, they also had to spend half this time watching me so that I wouldn't do something wrong to mess them up (distractions multiplied by 10). This is how they learn the best, by doing. Generally, most students learn the best by talking out a task and then doing it completely by themselves. (Sounds like future CFI training to me.)

Just for the heck of it, next time you start a student, talk to them a little while before you begin teaching them. You'll find it easier on you and cheaper on them.

Jim Trusty is an Aviation Safety Counselor for the Nashville (TN) FSDO. He was also the 1997 National Flight Instructor of the Year.

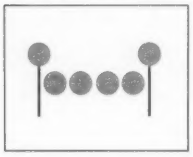
RUNWAY SAFETY CORNER

Guide to SMGCS Features

Improvements to airport signage, lighting, and markings have been made to enhance taxiing capabilities in low visibility conditions and to reduce the potential for runway incursions. In addition to these improvements, Advisory Circular (AC) 120-57, Surface Movement Guidance and Control System (more commonly known as SMGCS,pronounced "SMIGS"), requires a low visibility taxi plan for any airport which has takeoff or landing operations with less than 1,200 feet runway visual range (RVR) visibility conditions. This plan affects both air crew and vehicle operators. Taxi routes to and from the SMGCS runway must be designated and displayed on a SMGCS Low Visibility Taxi Route chart.

Descriptions of SMGCS features are listed below, but a SMGCS airport may not have all of these features. For additional SMGCS information refer to the *Aeronautical Information Manual* (AIM) or the particular airport's SMGCS Low Visibility Taxi Route chart.

Stop Bar Lights



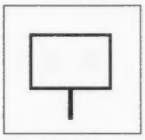
Stop bars are required at intersections of an illuminated (centerline lighted) taxiway and an active runway for operations less than 600 feet RVR. These lights consist of a row of red unidirectional, in-pavement lights installed along the holding position marking. When extinguished by the controller, they confirm clearance for the pilot or vehicle operator to enter the runway. Controlled stop bars operate in conjunction with green centerline lead-on lights, which extend from the stop bar location onto the runway.

Normal operation of stop bars include:

- When air traffic control (ATC) issues a clearance to the pilot to enter the runway, they activate a timer. This action causes the red stop bar to be extinguished and the green lead-on lights to illuminate.
- After traveling approximately 150 feet beyond the stop bar, the aircraft or vehicle activates a sensor. This sensor relights the red stop bar and extinguishes the first segment of the lead-on lights between the stop bar and the sensor, protecting the runway against inadvertent entry by a trailing aircraft or vehicle.
- The aircraft then activates another sensor at approximately 300-feet which extinguishes the remaining lead-on lights.
- If either sensor is not activated within a specified time limit, the stop bar will automatically reset to "on" and both sets of lead-on lights will be turned "off."

Should the pilot or vehicle operator have a discrepancy between the condition of the stop bar or lead-on lights and the verbal clearance from the controller, the aircraft or vehicle shall stop immediately. Pilots shall never cross an illuminated red stop bar.

Runway Guard Lights



Runway guard lights, either elevated or in-pavement, will be installed at all taxiways which provide access to an active runway. They consist of alternately flashing yellow lights. These lights are used to denote both the presence of an active runway and identify the location of a runway holding position marking.

Taxiway Centerline Lighting

Taxiway Centerline lights guide ground traffic under low visibility conditions and during darkness. These lights consist of green in-pavement lights.

Geographic Position Markings

ATC will verify the position of aircraft and vehicles using geographic position markings. The markings can be used either as hold points or for position reporting. These checkpoints or "pink spots" will be outlined with a black and white circle and be designated with a number, a letter, or both.

Clearance Bar Lights

Three yellow in-pavement clearance bar lights will be used to denote holding positions for aircraft and vehicles. When used for hold points, they are co-located with geographic position markings.

Taxiway Centerline Marking

Provides a visual cue to permit taxiing along a designated path. Marking may be enhanced on light-colored pavement by outlining with a black border.

Now that you have read this article, take the quiz on the Editor's Runway page. And remember no fair cheating! The information is taken from the Runway Safety Program Office's website <http://www.faa.gov/runwaysafety>.

(Answers to Editor's Runway quiz: C, F, B, A, D, and E.)

Patricia J. Hange: Charles Taylor Master Mechanic

By Buz Massengale

Ms. Patricia Jean "Pat" Hange, of Arcadia, Florida, received the Federal Aviation Administration's (FAA) Charles Taylor Master Mechanic Award in a special ceremony at the Museum of Science and Industry (MOSI), Tampa, Florida, on August 29, 2000. The Charles Taylor Master Mechanic Award recognizes those aircraft mechanics or repairmen who have engaged in 50 or more years of aviation maintenance, at least 30 years of which are as the holder of an FAA aircraft mechanic or repairman certificate. Of the over 600 recipients of this special honor since its inception in 1993, Pat is unique in that she is the first certificated woman aircraft mechanic to receive this award.

Pat began her aviation maintenance education while still in high school in 1946 as an apprentice under Cook Cleland, at the Euclid Avenue Airport, Willoughby, Ohio. She worked as a "prop girl," whose duties included hand-starting aircraft engines, refueling and lubricating airplanes, and cleaning aircraft. She assisted mechanics in routine servicing and aircraft repairs. She passed the written exam for her Aircraft Mechanic - Airframe rating in 1950.

In 1952, Pat went to work for Thompson Products, an aircraft parts fabrication shop that later became Thompson Ramo Wooldridge (TRW), and worked with them until 1962 as an engine mechanic and engine inspector. In 1962, Pat left TRW for a job at the Lenox Airport in Jefferson, Ohio, where she worked until 1963. Together with her friend, fellow flight instructor and business partner, Harriet Wladyka, Pat formed the Lenox Flight School in Bartow, Florida in 1963. She earned her Aircraft Mechanic - Airframe certificate in 1964 in order to maintain and repair the school aircraft. She added her Powerplant rating to her aircraft mechanic certificate in 1974. Pat added an Inspection Authorization (IA) to her aircraft mechanic credentials in 1978, and has served as an IA continuously since then. She was one of only four women holding the IA certificate when she earned it in 1978.

In addition to her qualifications as an aircraft mechanic, Pat has earned a number of pilot qualifications. She received a student pilot certificate in 1946, her private certificate in 1961, and her commercial pilot certificate in 1962. She became a flight instructor in 1964, and she became a pilot flight examiner in 1965. Pat has owned and worked on a great variety of general aviation aircraft throughout her extensive aviation career.

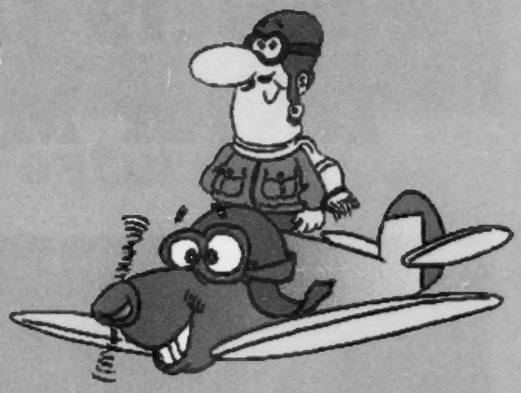
Ms. Hange is currently the general manager of the Lenox Flight School, based at the Arcadia Airport and is a glider pilot examiner. Pat is a member of several aviation organizations: International Organization of Women Pilots (Ninety-Nines), Women in Aviation International (WIAI), Association of Women in Aviation Maintenance (AWAM), Soaring Society of America (SSA), Silver Wings Fraternity, and the Aircraft Owners and Pilots Association (AOPA).

Buz Massengale is the Safety Program Manager at the Tampa (FL) Flight Standards District Office.

A young Pat Hange works on a 1932 Waco engine.

Safety First

Careers in Aviation



by Patricia Mattison

Last year I enjoyed the privilege of speaking at the EAA air show in Arlington, WA. I was surprised at the amount of people asking about careers in aviation. When we think of the aviation field, being a pilot is the first thought to cross our minds. However, there are so many career fields in aviation that it boggles the senses.

Being a pilot is the goal of many young people. They have the image of the airline pilot, stalwartly and courageously transporting passengers over great distances in gleaming air transport aircraft. But there's more to aviation than piloting an airplane.

What about the support staff? The plethora of folks who take care of the behind the scenes activity that allows the pilot to have a plane in the first place. I won't go back as far as Orville and Wilbur,I promise. But if it hadn't been for Charles Taylor... Anyway, let's look at the industry itself.

Aviation wouldn't be where it is today without scientists and design engineers to develop the fine aircraft that we have available. It begins with the aircraft design and development phase. Then the manufacturers, aerospace workers, and mechanics take over and the plans become reality. After the plane comes off the assembly line, the sales staff sells the aircraft to a buyer who puts it to work on their company line.

At an airline there are dispatchers who monitor aircraft and crews. The dispatcher must be familiar with routes and aircraft characteristics, watch weather trends, and see to it that aircraft arrive at their destination on time.

There are mechanics, both maintenance (airframe and engine) and avionics (radios and electronic equipment), who keep the aircraft in flying condition. Cabin maintenance personnel maintain the interior of the aircraft. Auto mechanics keep the ground service equipment running.

Most airlines have on staff a meteorologist to analyze the weather, a schedule coordinator to coordinate crew with airplane, and a station agent or manager to control flight and ground operations. Reservation agents are on staff to recommend services to meet the customers needs. Ticket agents, of course, sell tickets and help passengers coordinate their travel plans.

Of all the careers in aviation, the flight crew is the most readily recognized. Pilot, co-pilot, and on some aircraft a flight engineer comprise the cockpit crew. In order for the cockpit crew to perform as they do they require ongoing training. This is where the instructor pilot comes in. The instructor pilot gives recurrent training to flight crews on new procedures and routes that the pilots will be using. Training for an emergency is also part of recurrent instruction. Flight attendants, who are there for our safety, receive initial training in cabin safety as well as recurrent training during their careers.

Outside the airline industry there are many more opportunities. There is military service, flight instruction, and commercial piloting and dispatching for small air carriers. Sales personnel in aircraft sales and corporate pilots are always in demand. In addition there is the government service. The U.S. Forest Service and Federal Aviation Administration offer careers such as air traffic controllers, flight service station specialists, avionics technicians, and other aviation specialties.

There are many, many more jobs in the aviation industry than are mentioned in this short article. Trained aviation personnel are needed in most aviation arenas. Experienced pilots, mechanics, and other personnel are not coming from the military as they had in the past. If you decide on a career in aviation, talk to someone who works in the field or fields in which you have an interest.

I know that I have enjoyed my career in aviation and hope to have many more years to go.

Patricia Mattison is the Safety Program Manager at the Juneau Flight Standards District Office.

B-I-R-D Construction, Inc.

Beware of your fine feathered friends and other such creatures that like aircraft for prime home building sites.

by H. Dean Chamberlain

The photographs with this article highlight a potentially serious problem starting about this time of the year through the next couple of months. The problem is the desire of many of our fine feathered friends to build "condos and townhouses" in places pilots and aircraft owners would rather they didn't. The photographs show one single-family home. We didn't know if it was a "condo or townhouse," being hastily constructed in the tail of the Piper PA-22 in June of 2000 because the bird or birds didn't have a building permit. Or if it or they did, it wasn't displayed.

What made this large pile of straw, grass, and other material so interesting was the fact the aircraft owner had specially made covers for the various openings in his aircraft's aft fuselage to keep birds out of the area. In spite of his precautions, one or more birds found their way into his aircraft. How the birds got into the tail is only part of the problem. The second part of that problem is, how could one or two birds carry in so much material in only a day or two? As best as we could determine, the birds had only a day or two to do the work from the time the area was last checked until the nest was discovered on a preflight inspection. What really made this construction project the more interesting was that no one saw any birds entering the fuselage or carrying building material in the vicinity.

Fortunately, in the case of this aircraft, it was inspected very carefully. Other aircraft may not be so carefully inspected.

So beware of your fine feathered friends throughout this time of year. To paraphrase an old Star Trek® saying in describing the building frenzy that occurred in the back of this aircraft, one can only say the bird or birds involved in this construction project went where no bird had ever gone.

Although we have made a lighthearted attempt at being funny (my boss doesn't think I know the meaning of funny) this bird homebuilding project has some serious implications for all pilots and aircraft owners.

First, I think it is a good reminder that birds, and other critters, can gain access to parts of aircraft we may never think possible.

Second, although the owner had special protective covers to keep birds out of the aircraft, a bird still got in. As the photographs prove, protective covers and devices may not be 100 percent effective.

Third, the sheer volume of material carried into the aircraft in a day or two

Bird building material before removal, and on top photo: material after their removal.

is truly amazing. The photos are proof that a dedicated bird doesn't need much time to build a family estate.

Fourth, in my personal opinion, at the time of discovery, I don't think the B-I-R-D Construction, Inc. site would have interfered with the normal control usage in this particular aircraft on the next flight, but one never knows. The same cannot be said of all aircraft. It is impossible to say how large a nest this bird or birds would have built given the time. As the photographs show, one nest is one nest too many. Flight safety could have been compromised.

Fifth, think of the fire danger this amount of material could pose in say an engine cowling or around a cylinder head. In most general aviation aircraft, such a fire would burn until it burned itself out. One can only imagine the damage such a fire could cause. Do you remember your aircraft's manual recommended procedure for handling an engine fire? You might want to review it before your next flight.

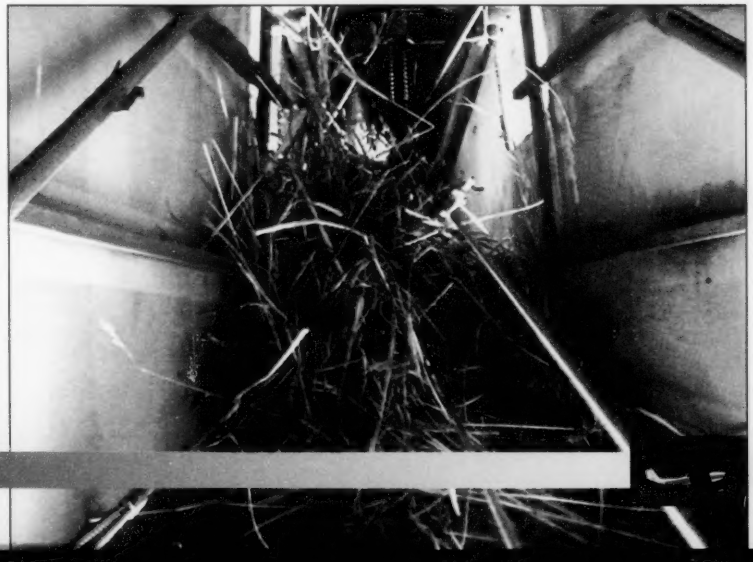
Sixth, think of the risk such a construction project would pose if it had been organized into a well-formed, hard nest. With this amount of material in such a small space, there is always the potential for a jammed control, pulley, control cable, or control activator.

And last, but not least, think of the damage a family of birds that could carry this amount of material to a nest site could cause in an aircraft if the aircraft just sat out on an airport somewhere during the summer and never was flown like so many aircraft do year after year. Think of the corrosive effect the birds and their droppings could cause in an aircraft if allowed to remain throughout the breeding season. Somehow, bird droppings and aluminum or aircraft fabric just don't seem to be a good combination.

Although we have tried to keep this article as a humorous article, the subject of birds and other critters taking up residence in an aircraft is always a possibility in the spring and summer. Whether it is a bird, a mud dauber (a type of wasp) building a nest in a pitot tube, or some other type of critter that flies, crawls, or slithers into an aircraft, pilots and aircraft owners need to pay particular attention to their aircraft during the spring and summer breeding season. This time of year gives new meaning to always doing a careful and complete preflight.

Keep the blue side up.

Makes you wonder how one or two birds can do this, but your home builder takes a year!



• Attention Pilots

In your January/February 2001 issue aren't two of the regulation references in the "Attention Pilots" section of the Big Deal story wrong? Shouldn't the number 7's reference be §43.9(a)(4), not §43.13(a)(4), and number 8's be §43.13, not §43.12?

Name Withheld

You are correct. The references should read:

7. The pilot's name and certificate number constitutes an "approval for return to service statement" only for the preventive maintenance work performed. [ref: section 43.9(a)(4)]

8. The performance standard for quality of work the pilot must meet is found in section 43.13, Performance rules.

We are still trying to figure out how the mistake happened, because it was correct on the original hard copy. Thanks for pointing out the typos.

• Aluminum And Steel Don't Mix Article

First, let me say that I enjoyed the article—BUT I take exception when you refer to your "new toy" as an "orphan." As a 25-year owner of Piper *Tripacer* and a founder of the *Tripacer* Owners Club (TPOC), which later expanded into the Short Wing Piper Club (SWPC), I must point out that, with the help of Piper Aircraft (later to reopen as The New Piper), TPOC/SWPC supplied short wing Piper owners with all the information and support (and possibly more) that would normally be forthcoming from the manufacturer. Our library, database, newsletter, and helpful members have been acknowledged by hundreds to be the primary reason for the SWPC being designated as "The best type club in the world"!

While the term "orphan" is usually used to designate an aircraft whose builder organization no longer exists, it has often been said by an orphan's adopted parents, "Other parents have to take what they get, but an orphan is CHOSEN by his/her parents." We, the proud owners of the *Clipper, Vagabond, Pacer, Tripacer* and *Colt* feel that, not only do they have loving parents, they have a family of over 2,500 loving relatives who enjoy working with and helping new owners.

Had you taken advantage of all the knowledge available to you when first deciding to buy your "orphan," you would have known what we know—that there is no other group of planes anywhere with a larger, more devoted family ready to welcome all new members.

Lonnie McLaughlin
TPOC/SWPC #5
Via the Internet

I am a member of the SWPC. You are right. The information available to club members is tremendous. I used the term "orphan" in the sense that you can't walk into a Piper dealership and buy a Tripacer *part. After buying thousands of dollars of parts and items from various vendors to upgrade my* Tripacer, *I feel like I should be on Univair's and Aircraft Spruce's Christmas card lists.*

One of the things I hope readers of the article gained from my experience is the need for would-be purchasers to contact the various type clubs for information. However, I am afraid many will not.

It is good to know that someone in fact read the article. Thank you for your comments.

• Is It High Performance?

If you have an airplane with a 185 horsepower (HP) engine that is rated for 205 HP on take-off, is it a high-performance aircraft? Someone mentioned that a *Navion* qualifies for this. I realize that it also would be a complex aircraft. If I had a complex-airplane endorsement but no high-performance endorsement, am I legal?

Bob Fitzsimmons
Via: The Internet

Per FAR §61.31(f), it just says "...an airplane with an engine of more than 200 horsepower)...." If someplace in the airplane's flight manual the engine specifications says, "more than 200 horsepower," it is a high-performance airplane.

§61.31(f) doesn't qualify the definition of "...more than 200 horsepower...." it just says "...an airplane with an engine of more than 200 horsepower...."

If Navion's *engine specifications show more than 200 horsepower, it is a high-performance airplane per §61.31(f).*

You could not fly such a Navion *as pilot in command unless you met the requirements of FAR §61.31(f).*

• Back Copies on the Web

It would be nice if all back and future issues of *FAA Aviation News* could be scanned and placed on an internet website for retrieval of back articles, etc. If they are already available on the net, please advise how to access them. Thank you.

Internet Address
Via the Internet

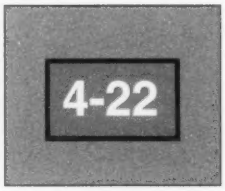
Right now, we are limited by server space to only placing the current and most recent three issues. We would, indeed, like to do more. A couple of years ago the U.S. Government Printing Office was selling a CD-ROM of back issues.

Thanks for the suggestion, and it's definitely something we'll be looking into if and when additional server space becomes available.

• Runway Safety Corner Quiz

In the Nov/Dec issue of *FAA Aviation News*, your first Runway Safety Corner Question asked what the meaning of a Runway/Runway Hold Line is. The answer given was that it denotes the entrance to a runway from a taxiway. I believe the correct answer should have been c. (denotes an intersecting runway). A Runway/Taxiway Hold Sign would denote the entrance to a runway from a taxiway but a Runway/Runway Hold Sign would be found on an existing runway to inform the pilot that the runway he or she is on will intersect another runway and that they should make sure the other runway has no traffic on it prior to going through the intersection.

Jason Owen
Via the Internet



The answer given in the article is correct. Please refer to the Aeronautical Information Manual (AIM) *on page 2-3-18, paragraph 2-3-8 Mandatory Instruction Signs, Subparagraph (b)(1) Runway Holding Position Sign. As noted, "This sign is located at the holding position on taxiways that intersect a runway or on runways that intersect other runways."*

This sign is used for both purposes. I hope this answers your question.

• ELT Watches?

I saw an advertisement for a wristwatch with a 121.5 MHz emergency beacon in it. Is it legal to purchase and use a wristwatch that contains an emergency locator transmitter (ELT)? These are on sale in other countries. Can that wristwatch be used as an emergency locator transmitter (ELT) in an aircraft?

Name Withheld
Via the Internet

Yes and no. Yes, certificated pilots can purchase such a watch. No, these devices cannot be used in an aircraft to meet the FAA's ELT regulatory requirement. These devices do not meet the FAA standard, TSO-C91a for 121.5 MHz ELT's, required for aircraft usage.

Last July, the Federal Communications Commission granted a waiver to Breitling U.S.A. of certain ELT requirements to permit the sale of such devices under the specific conditions noted in the waiver to certificated pilots in the United States. One of the conditions of the waiver is that the one-time use device is to be operated only in case of an aviation emergency. The waiver contains other conditions that must be met by Breitling and the purchaser as a condition of sale.

• FAA's Public Inquiry Web Site!

Does the FAA have a general information site that the public can easily access? If so, what topics can we expect to find?

Name Withheld
Via the Internet

The FAA has designed a website to quickly address inquiries that you may have about FAA and its programs. Simply log into the FAA website <http://www.faa.gov> and then click on "PUBLIC INQUIRY." Some of the subjects offered include airmen certification, regulations, aeronautical charts, job opportunities, consumer issues, and traveler information.

Simply click on the icon that represents your area of interest to find information on your subject. If you cannot find the information that you seek, scroll to the bottom of the page for the option of e-mailing your inquiry to the FAA. The FAA is committed to responding to every inquiry as soon as practicable.

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to H. Dean Chamberlain, FORUM Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463; e-mail address:

Dean.Chamberlain@faa.gov

CANAVAN NEW HEAD OF FAA'S CIVIL AVIATION SECURITY

In December, retired Army Lt. Gen. Michael A. Canavan assumed his new duties as the Associate Administrator for FAA's Office of Civil Aviation Security. According to a November FAA media release announcing his appointment, FAA Administrator Jane Garvey said, "I am extremely pleased that Mike Canavan has accepted this important position with the FAA. His vast experience in overseeing the defense of our nation will make him a strong leader as we work with industry to ensure security for the flying public."

Since 1998, Canavan has served as chief of staff for the United States European Command in Stuttgart, Germany, where he coordinated the command's operations in Europe and most of Africa. In this position, he advised the commander and deputy commander in chief, and was responsible for the day-to-day coordination and operation of 1,400 joint staff overseeing 100,000 U.S. forces in the European Theater, Middle East, and Africa.

Before his appointment as chief of staff, Canavan held a number of important positions, including serving as the commanding general for the Joint Special Operations Command from 1996 to 1998, commanding general for Special Operations Command Europe from 1994 to 1996, assistant division commander for operations for the 82nd Airborne Division from 1993 to 1994, and commanding general for the Training and Doctrine Analysis Command from 1992 to 1993. He also held a variety of command and staff positions in Vietnam, Thailand, Germany, the Republic of Korea, and the United States.

Canavan enlisted in the U.S. Army in 1966 and served as a combat engineer. He was later commissioned a second lieutenant of infantry after graduating from the Infantry Officer Candidate School in Fort Benning, GA.

Canavan is a graduate of St. Martin's College, the U.S. Army Command and Staff College, and the Army War College. Some of his many military awards and decorations include the Defense Distinguished Service Medal with one Oak Leaf Cluster, Defense Superior Service Medal, Legion of Merit with one Oak Leaf Cluster, Bronze Star with one Oak Leaf Cluster, the Purple Heart, and the Combat Infantryman's Badge.

ELT RULE CHANGED

The December 22, 2000, *Federal Register* published a change to the emergency locator transmitter (ELT) rule for certain aircraft. The rule, 14 Code of Federal Regulations (CFR) §91.207, Emergency locator transmitter, was changed to comply with a Congressional change in the public law concerning ELT's.

The new final rule, effective January 1, 2004, removes the current turbojet-powered aircraft exception and adds a new exception for aircraft with a maximum payload capacity of more than 18,000 pounds when used in air transportation.

Readers should review the complete rule change in the *Federal Register* and the supporting background information published in the final rule.

The *Federal Register* contained an error in publishing the rule change. Section (f)(1) should have read "...turbojet-power aircraft:" rather than what was published "...turbo-powered aircraft;". FAA is aware of the publishing error and is in the process of having it corrected.

PAUL POBEREZNY RETIRES FROM EAA AVIATION FOUNDATION BOARD OF DIRECTORS

On Nov. 21, 2000, the EAA Aviation Foundation reported that Experimental Aircraft Association (EAA) Founder Paul Poberezny, who has served on the EAA Aviation Foundation Board of Directors since the foundation's inception, has announced his retirement from that governing body.

According to the following EAA Aviation Foundation media release, the

EAA Aviation Foundation was created in 1962 as a non-profit public education, aircraft restoration, and aviation research entity. It is a separate, but parallel, operation with EAA, which has 170,000 members in more than 100 nations. Among the services administered by the EAA Aviation Foundation are the EAA AirVenture Museum, education efforts such as the Young Eagles and Science-Math-Technology Programs, as well as research initiatives such as alternative fuel studies.

"It's been a great education serving and learning about my fellow human beings through my work with the EAA Aviation Foundation," Poberezny said.

Poberezny, 79, will continue to serve on the EAA Board of Directors, which governs the operations, services, and programs for the membership association. He has served as a member of that board since EAA's founding in 1953. As a Director Emeritus, Poberezny will continue to be available to the EAA Aviation Foundation Board in an advisory capacity and for special projects.

Poberezny's son, Tom, has served as President of EAA and the EAA Aviation Foundation since his father's retirement from the association's day-to-day operations in 1989.

NEW FAA PUBS AVAILABLE THROUGH GPO

The following FAA publications are available through the U.S. Government Printing Office. The publications can be ordered by mail, telephone, fax, or online. All are now made available for sale from the Superintendent of Documents. Prices include regular shipping and handling. Prices and availability are current as of September 2000.

Products may also be purchased at the U.S. Government Bookstores located throughout the US.

General Aviation Operations Inspector's Handbook updates and clarifies policies contained in volume 2, chapters 48 and 49 of the previous edition. Loose leaf format. 138 pages. Stock number 050-007-01289-6. ISBN 0-16-059261-5. Price $15 in the U.S. $18.75 outside the U.S.

Systems and Equipment Guide for Certification of Part 23 Airplanes. The April 25, 2000, Advisory Circular (AC) shows a means of showing compliance with Title 14 Code of Federal Regulations Part 23 for the certification of systems and equipment in normal, utility, acrobatic, and commuter category airplanes. Applies to Subpart D for design and construction and Subpart F for equipment. 200 pages. Stock number 050-007-01287-0. ISBN 0-16-059247-X. $21 in the U.S. $26.25 outside the U.S.

These publications may be ordered via telephone, fax, mail, or online. To order, telephone 202-512-1800 (M-F, 7:30 am-5:00 PM EST); fax 202-512-2250; or send mail to Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. To order on the Internet, visit the GPO Online Bookstore at <http//bookstore.gpo.gov>. All orders require prepayment, either by check, VISA, MasterCard, Discover/NOVUS, or GPO Deposit Account.

FAA EARNS HIGH MARKS FOR CUSTOMER SATISFACTION

For the second straight year, commercial pilots participating in a government-wide customer satisfaction survey have given the FAA very high ratings for professionalism and for ensuring the safety of the U.S. aviation system.

In the survey, conducted as part of former Vice President Gore's National Partnership for Reinventing Government (NPR), pilots gave the agency's air traffic services an 8.0 rating (out of 10) for professionalism, and an even higher 8.3 rating for ensuring air traffic safety. The outstanding marks were awarded despite a difficult summer that had a record number of days with thunderstorms and more planes in the air, producing an increase in the number of delays.

"We're pleased that commercial pilots, who experience the impact of delays first-hand, see FAA air traffic controllers as knowledgeable, helpful, responsive, and doing a first-class job ensuring safety," said FAA Administrator Jane F. Garvey. "Their input helps us create an FAA that works better, costs less and is responsive to the ever-increasing demands of our aviation system."

The surveyed pilots also gave the pilot examiners who conduct the flight check part of the pilot certification process good marks for their competency (8.3). Examiner competency is equivalent to air traffic controller professionalism for the purpose of this survey. The pilots rated the pilot certification process, as a whole, slightly lower (7.0) for how well the process reflects their job skills and knowledge.

The results of the 2000 customer satisfaction survey show that the FAA needs to continue to improve the clarity of its aviation policy standards and safety rules. In response to last year's survey results, the FAA started a program to simplify its rulemaking process by writing new regulations in plain language.

Although the 2000 survey showed no measurable improvement in clarity and understanding of FAA regulations and policies, the agency has laid the foundation for change. During the first year, the FAA focused on encouraging its employees, who are most involved in developing new regulatory documents, to use plain language. The FAA also published several documents in new, easier-to-read formats, including a final rule on general rulemaking procedures that uses a question and answer format.

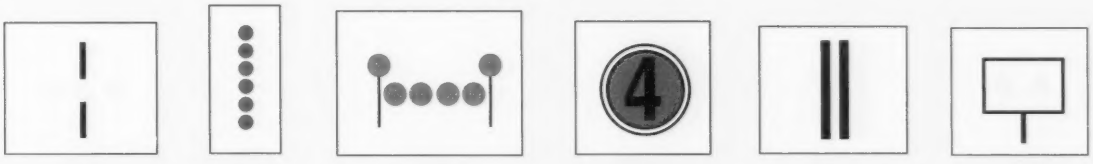
Editor's Runway

from the pen of Phyllis-Anne Duncan

Quiz on Runway/Taxiway Arrangement of SMGCS Features

We decided to do something different this issue on the *Editor's Runway* page. (Yep, the Editor was all out of ideas.) To see how well you are retaining the information presented in the magazine, we are going to give you a quiz on SMGCS. Match the illustration to the description and, remember, this is not an open book quiz!

Test your knowledge of SMGCS



_____**Stop Bar Lights**
Row of red, in-pavement lights that when illuminated designate a runway hold position. NEVER CROSS AN ILLUMINATED RED STOP BAR.

_____**Runway Guard Lights**
Elevated or in-pavement yellow flashing lights installed at runway holding positions.

_____**Taxiway Centerline Lights**
Green in-pavement lights to assist taxiing aircraft in darkness and in low visibility conditions.

_____**Clearance Bar Lights**
In-pavement yellow lights. When installed with geographic position markings they indicate designated aircraft or vehicle hold points

_____**Geographic Position Marking (pink spot)**
Indicates a specific location on the airport surface.

_____**Taxiway Centerline Marking**
Provides a visual cue to permit taxiing along a designated path. Marking may be enhanced on light-colored pavement by outlining with a black border.

(The answers to this quiz can be found on page 20). *For additional SMGCS information refer to the* Aeronautical Information Manual (AIM) *or the particular airport's SMGCS Low Visibility Taxi Route chart.*

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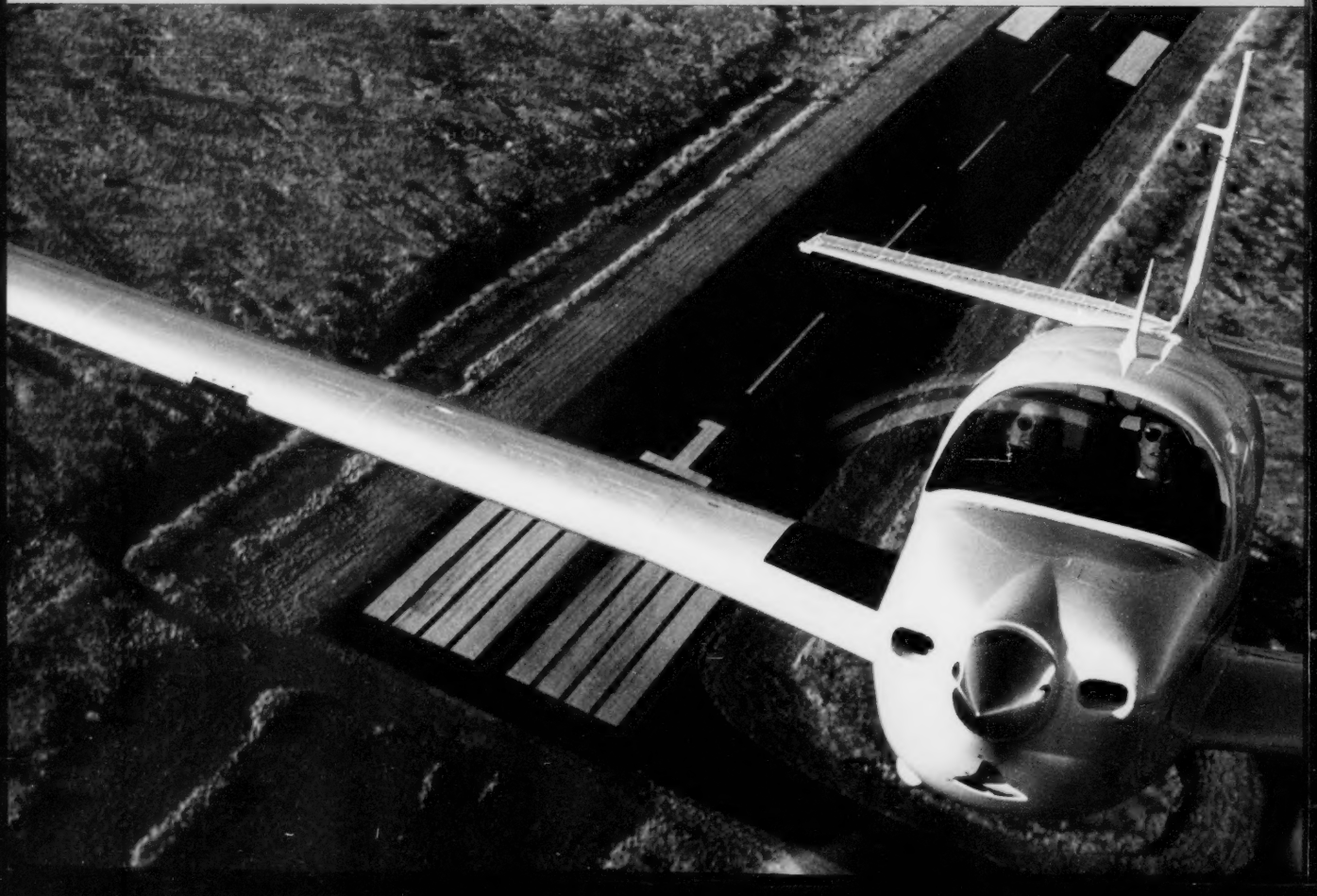
DO NOT DELAY -- CRITICAL TO FLIGHT SAFETY!